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Intermittent Fever

J. R. Gregg

An

Inaugural Essay

on

Intermittent Fever

for

The Degree

of Doctor of Medicine.

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To the Trustees and Medical
Faculty of the University
Of Pennsylvania.

Gentlemen,

As a candidate for the Medical Honours of this University, I am called upon by its laws to lay before you a Dissertation on some subject connected with the Science of Medicine. Accordingly, I have selected, for the occasion, the Disease, called Intermittent Fever.

It could not be expected that I, a mere Tyro in Medicine, should attempt to offer any thing new on a subject, which has exercised the genius and employed the pens of the most distinguished men of the Medical Profession.

I shall, therefore, disclaim all pretensions to originality, and content myself

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with a brief history of the disease and the remedies which have been found most successful in the Treatment of it.

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Of Intermittent Fever.

An intermittent fever may be defined a disease which alternately commences and terminates at a particular or given time, and is marked by regular and distinct periods. As an example of this definition, I would say, that it came on, on a particular day, perhaps every or every other day, and at a particular hour on this day; and is marked by a febrile rigour or chilly fit: and this fit is succeeded by a hot stage, which, after some space of time, goes off entirely. But as the intervals of time, between the recurrence of the paroxysms, are various, intermittent fever has been distinguished, by different appellations.

When the disease commences and terminates every day, it is called a Quotidian; when on alternate days or every other day, it is

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called a tertian, and when on every fourth day, it is called a quartan.

Other forms of this disease have been mentioned, by both ancient and modern writers: such as the quintan, the sextan, the septan, the octan, the nonan &c. but these are of rare occurrence, and will obtain no farther attention from me, than merely to mention the fact.

The double quartan begins and terminates at a given hour for two days in succession, and does not appear on the third day, but again on the fourth and fifth days, as it did at first.

Triple tertian and quartan have been mentioned. The disease is called triple tertian when three paroxysms occur in the space of two days; that is, one every sixteen hours. More frequently, two paroxysms take place on one day, while the next proves a day

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of complete intermission: this form of the disease might be called a double tertian. But these forms of the disease seldom accur. When these fevers arise in the spring of the Year, they are termed Vernal; and when in the Fall, they are termed Autumnal. Generally speaking, the vernal intermittents are less obstinate, in yielding to medical treatment, than autumnal.

Intermittents, frequently, prove obstinate, and of long continuance, especially, in warm climates, and frequently resist every mode of treatment, so as to become exceedingly distressing to the patient, and give rise to other more obstinate diseases; but more particularly dropsical swellings, diarrhoea, hysteria, a morbid enlargement of the liver and spleen &c.

Causes. The causes, which have been alleged to this disease, are various; a

number have considered it, as a disease lurking in the Prima Via, and have stated, in proof of this opinion, the constant vomiting which attends it, in its first appearance; others, again, have considered the Pancreas as its seat; and in favour of this opinion, have adverted to the schirrosity which sometimes takes place in this viscus in intermittent fever.

A great number of other causes have been mentioned; such as watery, poor diet, long watchings, great fatigue, intemperance, much anxiety, debility, grief, exposure to cold, lying in damp rooms or on damp beds; a warm moist, or a cold damp atmosphere; the suppression of some accustomed evacuation; the recession of eruptions, and preceding disease.

It has been thought by some, that intermittent fever could be communicated by

contagion, and indeed it would appear to corroborate this opinion, seeing it is sometimes communicated to the distance of eight or ten miles; but this seems to arise from the continuation of the wind in the same direction for many days together, and by this means wafting the effluvia from some distant fen or bog.

After all their conjectures, however, the true cause appears to be marsh effluvia arising from vegetable putrefaction.

There is one peculiarity in intermittent fevers, that is, the facility with which it is renewed from very slight causes; it may, for instance, be renewed, by the prevalence of an East wind, or its former exciting cause may be repeated. Intermittents differ, in this circum-

stance, from most other fevers.
Each paroxysm, of an intermittent fever, has been divided into three stages, which have been denominated, the cold, the hot and the sweating stages.
When the febrile cause begins to act, a sensation of coldness is immediately felt; there is great lassitude and heaviness, a sense of anxiety, a yawning and stretching; there is a paleness of the countenance; the size or bulk, of the external parts, becomes diminished and the skin appears to be contracted over the whole body.—
After some time comes on the chilly fit, which appears in various forms. Sometimes it commences at the lower extremities, and at other times, in the back: it pervades the whole frame in a manner somewhat resembling streamlets of cold water irregularly poured

in various directions —

The rigours are sometimes so great, as to bring on one continued tremour; the superior extremities begin to shake; sometimes the inferior maxillary bone is seized with a quick and quivering motion, which is at times very considerable; even so much so, as to produce an involuntary clashing of the teeth against each other.

Being affected, by such motions, the unfortunate sufferers are unable either to stand or sit, but are obliged to lie down and contract themselves, that their limbs may press against, and support each other.

The respiration is frequent, small and anxious; sensibility becomes impaired; the urine is almost colourless, and the pulse is small, frequent and sometimes irregular.

In some very few instances, sleepiness and a diminution or even suspension of sensibility takes place, to such an extent, as to bear a resemblance to apoplexy or coma; but this rarely occurs—

It not unfrequently happens, that the whole body is not affected in the same manner, by the cold stage of an intermittent fever. The lower extremities are sometimes extremely cold, while the upper parts of the body are excessively hot. Sometimes the patient is affected only in one arm or leg, and this goes through the regular stages.

The hot stage, of an intermittent fever, occasionally precedes the cold, and the cold stage sometimes does not occur at all. These, however, are anomalous symptoms and deserve but little attention.

There is also, now and then, an irregularity

in the fit which precedes an intermittent. Sometimes it is lighter, and at other times more severe.

Intermittents seem to be more severe in those persons, who are very old and whose muscular fibres have become relaxed, than in those, who are in the vigour of youth.

The time, of the continuation of an intermittent, is different, in different cases, for in one case, it may continue only one or two hours; and in another case, it may continue for three hours, and it may, indeed, be protracted to even a longer period.

Should the cold fit, of an intermittent, continue longer than usual, we are not to conclude from this circumstance, that the hot stage will be more severe and obstinate; it is, indeed, sometimes the final one.

The hot stage, of an intermittent fever, in general, agrees to that of the cold; but it frequently happens, that a tremour, of but short duration, is followed by a very severe paroxysm of fever, of many hours continuation; and on the contrary, it sometimes happens, that a long cold fit is succeeded by a short, slight attack of fever.

When the paroxysms, of an intermittent fever, are so prolonged, as nearly to run into each other, the cold fit is, in general, less plainly perceived.

After the cold fit has continued for some time, it then begins to abate, and is followed by an increase of heat, which, by degrees, spreads over the whole body and is marked by considerable variety. It appears to be more intense, if the cold stage has been very severe; the whole body becomes flush-

ed, particularly the face; the thirst is very great, with dryness of the mouth and skin: there is, generally, a considerable pain in the head; the temporal arteries throb, and there is, not unfrequently, great disquietude, tossing and anxiety; the respiration becomes more full and free, but still continues to be frequent; the tongue becomes furred, and the pulse more regular, hard and full; and the urine becomes highly coloured, and in some instances, even delirium supervenes. This constitutes what is called the second stage of an intermittent fever.

After these symptoms have continued for some time, then a gentle moisture may be perceived, first on the forehead, which after a short time becomes a sweat, and gradually spreads itself over the surface of the whole body.

After this stage, then an apyrexia takes

place, and all the functions seem to be restored to their natural state. The heat, which before pervaded the whole body, now begins to subside; the thirst, which was so very distressing, now ceases; the urine, which was so very high-coloured, now becomes of its natural appearance, and deposits a sediment; respiration, which was impeded, now becomes free and easy; and all or nearly all the functions seem to be restored to their healthy state, and tired nature seems to be revived; the patient is, however, left in a feeble and exhausted condition. This completes the paroxysm of an intermittent fever—

As the paroxysm again approaches, a disturbance or disordered action of the system becomes more or less perceptible. The approach, of the fit, generally happens on the same hour of the day; its order, how-

ever, is sometimes interrupted: For example, it occasionally occurs before its usual time, by longer or shorter intervals; and, occasionally, after it.

When a fit of the intermittent fever takes place, before the usual time of its appearance, it is an evident token that the disease is acquiring vigour: but if the fever appear at a later period of the day, than usual, it may be taken for granted, that it is losing ground.

The symptoms are to be considered as unfavourable, when the paroxysms are long, violent, and attended with much anxiety and delirium: when there is great lassitude, dizziness in the head: when the evacuations are fetid; when dysentery or cholera morbus supervenes, and when there is an enlargement of the liver or spleen &c.

But when the paroxysms are short, and

regular in their return, and leave the interval quite free: then in a short time, we may expect the solution of the disease.

Treatment. It now remains for me to treat of the cure of an intermittent fever. It will appear to many, unnecessary for me to speak of this at all: for there is scarcely an old woman, that does not consider herself competent to cure this disease.

An intermittent fever, sometimes, terminates spontaneously, or may, in many instances, be easily cured. In some cases, however, it is extremely dangerous, and very difficult to be removed. It, now and then, terminates by a spontaneous diarrhoea, by a flow of urine, or by some other emunctory.

The remedies, which have been used in the cure of an intermittent, are very numer-

ous and various; I shall endeavour, therefore, to mention those, which have been employed with the greatest advantage.

The principal indications, which present themselves, in the cure of an intermittent fever, are, in the first place, to shorten the duration of the paroxysm; and in the second place, during the apyrexia, to prevent its return, at the usual, or any period afterwards.

To effect the first of these indications, it will be proper to place the patient, immediately in bed; if we should be called during the cold stage, and then give him warm diluent drinks, use pediluvia and cordial diaphoretics; such as, a table-spoonful of spiritus mindererii (or acetate of ammonia) taken in warm camomile tea; or it may be taken in wine whey every hour, until the chilly fit

goes off; these are given with a view to excite perspiration.

The Tourniquet has, likewise, been used, but I believe not very successfully.

The Volatile alkali has been given, with considerable advantage, in this stage of intermittent fever: likewise camphor and opium; this last mentioned remedy has been found peculiarly serviceable, both by alleviating pain and bringing on a gentle diaphoresis.

It is mentioned, by Dr. Trotter, in a work entitled Medicina Nautica, that in a few minutes after the exhibition of opium, the spirits, of the patient, would be enlivened, which was followed by a relaxation of the surface of the body; the countenance looked cheerful, and a flush was spread over the cheeks. He likewise reports; the moment that the

sick felt the approach of an attack, they would immediately run to him for their drops. He mentions that he never gave less than thirty drops of Laudanum and and never had occasion to give more than sixty in the space of an hour; and the remedy did not fail to give relief in a single instance: the pulse, which was weak, quick, and sometimes irregular, before the exhibition of a dose, would afterwards, become less frequent, more full and equal; an agreeable warmth was diffused over the surface of the whole body, and every unpleasant feeling vanished in a short time.

If a very large dose had been exhibited, it would sometimes occasion sleep, but this was, by no means, a common circumstance.

Dr. Trotter also mentions: "the second

paroxysm was commonly an hour or two later, than the preceding one, and but few instances occurred where any indisposition indicated a third attack, at the expected period of accession."

Sulphuric Æther holds a place, in the list of remedies, in the cold stage of an intermittent fever. The quantity, in which it is given, is about one drachm for a dose: it appears to prevent, in some degree, the coming on of the hot stage.

Emetics have been very strongly recommended, in this stage of intermittent fever, by some writers; they appear to be useful by producing perspiration, and by destroying the morbid concatenation induced by the cause of the disease, and thereby, prevent a return of the paroxysm. But, above all the remedies, which have been mentioned,

opium appears to be decidedly the best. Should the patient be troubled with cough, and a pain in the side, so severe, as to affect respiration, a blister should be applied; and should not this relieve the affection, it may not be improper to take away a small quantity of blood. If the head should become very much affected, during the paroxysm, a blister may be applied to the back, and leeches to the temples: in the mean time, however, laying aside the use of opiates.

If the legs should suffer much, from a very great degree of coldness, and the pulse, at the same time, be sinking, sinapisms may be applied to the feet.

Having treated of the cold stage, of an intermittent fever, we shall next say a few words concerning the hot stage.

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In the treatment of the hot stage, there is a twofold indication: in the first place to remove irritations which may occur from bile in the stomach &c. with this view, a dose of emetic tartar should be administered: the operation, of which, may be encouraged, by the use of warm drinks.

The next remedies, which come in use are diaphoretics: such as, James' Powders, Emetic Tartar in nauseating doses, Spiritus mindererei &c. the last mentioned remedy is prompt in its action, and sits very well on the stomach. Opium has been used, by some writers, in the hot stage of intermittents: by Dr. Lind for one, if I am not mistaken. But this is an injurious practice, in as much as, it increases head-ache and aggravates all the symptoms.

C. cordifolia. Common pale Bark

— latifolia Yellow Bark

— oblongifolia Red Bark

Intermittent fever, sometimes, becomes inflammatory, especially in the spring of the year; the symptoms are as follow; a strong, full pulse, labouring respiration, flushed countenance, pain in the head &c.

In these cases, venesection should be employed, and the alimentary canal should be evacuated. When we have, by these means, obtained a complete intermission, then the peruvian bark should be used, in large doses: one or two drachms may be given, in the space of an hour, provided the stomach will bear so great a quantity. The benefit, arising from the administration of the bark, depends very much on a large quantity, being given in a short space of time.

Should not the bark rest well on the

stomach in powder, it may, then, be given in decoction, infusion or extract, joined with some aromatic, to make it more palatable; such as, tincture of orange bark. The following formula answers very well: ℞: Extract: cinchon: gr XV, Decoct: cinchon: ℥ ij vel IV, Tinct: cort: aurant: ℥ss vel ℥j: A draught of this mixture may be taken every two hours. Should the bark be rejected from the stomach, in all the forms, which have been mentioned, we may then give it by injection: In this manner, it frequently proves beneficial. The quantity, to be used for this purpose, is about one drachm or one drachm and a half of its extract, dissolved in a sufficient quantity of water, to which may be added a few drops of the tincture of opium: it will, by the addi-

tion of the opium, be longer retained.

The use, of the bark by injection, may be found convenient for those patients, who cannot be prevailed upon to take it in any other form. It may be found peculiarly serviceable in the cases of children: to whom it is very difficult to administer medicines of any kind.

External applications, of the bark, have, likewise, been found useful, in the cases of children, by means of the bark jacket: it appears to act, beneficially, by making a tonic impression on the skin, and this is communicated to the stomach by a sympathetic or some other mode. The common oak bark, I have seen used advantageously, in this manner. The bark, when given internally, has been combined with various substances, in order

to increase its effect, but they seem rather to diminish, than increase it.

In case the bark should purge, when given internally, a few drops of the tincture of opium may be used, or ℥ss or ℥j of the Tincture of Kino. On the contrary, if it should produce constipation, some gentle laxative may be combined with it, as a few grains of powdered rhubarb.

Previous to the exhibition of the bark, preparatory measures should be employed. The system should be prepared, by evacuations from the alimentary canal, by emetics and cathartics. Without this precaution, it would be hazardous to administer the bark; as many very injurious effects might be the consequence: for this purpose, Emetic Tartar and calomel are generally used.

Emetics seem to act in a twofold point

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of view: in the first place, by merely evacuating the stomach; and secondly, by making an impression on it.

Blood-letting has occasionally proved a useful precaution to the administration of the bark.

The bark may almost be considered as a specific remedy in intermittent fever. In violent cases it should be continued during the night as well as day. Serpentaria has a place, amongst other remedies, in intermittent, and by Sydenham it was used with wine. It very well suits the cases of children and those of a weak and delicate habit. It assists the bark in a state of combination; the following prescription has been found useful: ℞: Cort: Peruv: ℥ss, Serp: Virgin: ℥j; Carb: Sod: ℥j: this may be divided into four powders, and these

Swietenia febrifuga. Swietenia Mahagony

may be given in the course of the day. This prescription will sometimes cure intermittent fever, when all other remedies fail.

The Eupatorium Perfoliatum has been given in decoction; it acts as a diaphoretic or diuretic.

Angustura has been used with advantage in intermittent fever; it may be given pretty much in the same manner as the Peruvian Bark.

Mahogany, in decoction or infusion, has also been given; as likewise have the different species of gentian and quassia. Kino has been freely employed in this city; the public voice is, however, against it. This formula has, however, sometimes been found useful — ℞: Gum Kino ℥ij; Rad: Gent: ℥ss, Gum Opii gr: ij ~~Misce~~. This prescrip-

tion is to be divided into twelve powders: one, of which, is to be given every two hours.

Charcoal is sometimes useful, in intermittents, by correcting fetor; the dose is about one drachm, to be repeated about as often as the peruvian bark.

Sulphur has been used, and it has been found equally successful when used with milk as with spirituous liquors.

Sulphate of Copper or blue vitriol has been employed in the following formula:

℞: Sulphas Cupri gr IV, Cort: Peruv: gr XXXIV. divide this mass into sixteen pills, one, of which, is to be taken every three hours.

Cuprum Ammoniacum and the different preparations of Zinc, particularly, white vitriol have, sometimes, been found useful.

Common Alum (or Sulphate of Alumine)

has been used in the treatment of this disease.

Arsenic also holds a conspicuous place amongst the remedies for intermittent fever; and next to the peruvian Bark, perhaps, it may be considered the most useful. In the cases of Children, it will be found a very convenient medicine, as it is very difficult to get them to take the bark. The preparation generally used is the mineral solution of Dr. Fowler, in doses of from two to twelve drops, three times a day, according to the age of the patient &c.

The spider's web or Sella Aranii has been very highly recommended by our present worthy Professor of the Theory and practice of Medicine, in the dose of four or five grains, repeated every four or five hours.

In cases of intermittent fever, it will be necessary to continue the use of the bark, for some time after the disappearance of the paroxysms, as they are apt to return. The precise length of time that the remedy should be used, after the paroxysms have disappeared, it is difficult to determine. It might not be improper to continue the use of the bark in the same doses for some days after the disappearance of the paroxysms, and very gradually desist from its use. Even then, should there be any damp weather or unfavourable winds, it may be used with advantage, during their prevalence.
As there are different species of bark, to be met with; it may not be improper to say a few words on this subject. It appears, however, from well attested facts, that the yellow bark

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is superior to the red; it appears to be more bitter and of a more astringent quality. The yellow bark, given in powder, every two or three hours, in the dose of about half a drachm, has been found, for the most part, sufficient for the cure of an intermittent fever.

As I have before said, it frequently happens, after the long continuation of an intermittent fever, that obstructions are formed in the liver and other of the abdominal viscera; when this happens, mercury is the remedy on which we are principally to rely.

Should dropsy supervene, from any cause whatever; whether from visceral obstruction or from general debility, which is often the result of a protracted intermittent, it is to be treated by the remedies proper for that form of

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disease; such as tonics, diuretics &c.
It now only remains for me to say a few words on the subject of regimen. This should be light and nutritious: Rice, Barley, Panado &c. should be taken as food.
Animal food, in a very small quantity, may be taken, and a little wine also, when there is a complete intermission.
Sometimes the most beneficial effects are to be derived from a change in situation. Should the patient live in, or near a marshy country, he should remove to a situation more elevated.
Cold Bathing is sometimes advantageous, and especially when none of the viscera are affected.
Thus have I endeavoured, agreeably to my proposition on the first page of this Essay, to delineate the common course of an intermittent fever; and to enume-

rate the remedies, suited to each stage of the disease.

If I have omitted to mention a great variety of medicines, that have been occasionally employed by the different authors, who have written on the subject, from the days of Hippocrates down to the present time, it has been from a disposition to avoid trespassing upon your time and patience.

With sincere wishes for your welfare and for the prosperity of medicine,

I am, Gentlemen, sincerely Yours,

John Ryland Grigg.

Philadelphia Nov. 1819.